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monitor a line rms voltage to detect a high voltage condition such that the voltage is above a predetermined voltage range;

monitor the line rms voltage to detect a low voltage condition such that the voltage is below the predetermined range;

electrically isolate the electrical device such that the electrical device does not receive electricity when at least one of a high voltage condition and a low voltage condition is detected;

monitor the line rms voltage after electrically isolating the electrical device to detect a voltage within the predetermined range;

restore power to the electrical device when the line rms voltage is detected to be within the predetermined voltage range;

provide a visual indication when a low voltage condition is detected;

provide a visual indication when a high voltage condition is detected; and

provide a visual indication when the line voltage is being tested.

REMARKS

The Office Action mailed May 23, 2002 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-20 are now pending in this application. Claims 1-20 stand rejected.

In accordance with 37 C.F.R. 1.136(a), a one month extension of time is submitted herewith to extend the due date of the response to the Office Action dated May 23, 2002, for the above-identified patent application from August 23, 2002, through and including September 23, 2002. In accordance with 37 C.F.R. 1.17(a), authorization to charge a deposit account in the amount of \$110.00 to cover this extension of time request also is submitted herewith.

The rejection of Claims 10-20 under 35 U.S.C. § 112 first paragraph is respectfully traversed.

A functional limitation defines something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining an invention in functional terms because functional language does not, in and of itself, render a claim improper. See, for example, In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971), MPEP § 2173.05 (g). Applicant respectfully submits that an artisan of ordinary skill in the art reading the disclosure, would not need a more detailed description than set forth in the specification to understand how to make the circuit of the present invention wherein the circuit is configured to monitor a rms line voltage and produce a plurality of different outputs when the monitored line voltage is detected at various amplitudes with respect to a predetermined range. A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. See MPEP § 2173.05 (g). Applicant submits that the “configured to” language of the claims provides sufficient limitation to an artisan of ordinary skill. Furthermore, Applicant respectfully submits that such a limitation is supported by the specification. For example, at lines 1-4 of paragraph 0009.

Accordingly, for at least the reasons set forth above, Applicant respectfully requests the rejection to Claims 10-20 under section 112, first paragraph be withdrawn.

The rejection of Claims 10-20 under 35 U.S.C. § 112 second paragraph is respectfully traversed. Applicant respectfully submits that Claims 10-20 satisfy Section 112, second paragraph. Applicant respectfully submits that one skilled in the art, after reading the specification in light of the Figures, would understand Claims 10-20 because a functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used, and Applicant respectfully submits that no gap between necessary structural connections exists. See MPEP § 2173.05 (g). Applicant therefore respectfully submits that Claims 10-20 are definite and contain subject matter that is supported by the specification in such a way as to enable one skilled in the art to make and/or use the invention.

Accordingly, Applicant respectfully requests that the rejection of Claims 10-20 under Section 112, second paragraph, be withdrawn.

The rejection of Claims 1-20 under 35 U.S.C. § 102 as being anticipated by Allos (U.S. Pat. No. 4,707,760) is respectfully traversed.

Allos describes a mains protection device for AC mains including a voltage supply circuit (1), a voltage comparison circuit (2); a control circuit (3); and an output and status display circuit (4). In normal operation, the device detects when the peak of the instantaneous value of alternate half cycles of the mains goes outside a predetermined range to provide a first signal state, i.e. a high condition at the output of NAND gate IC3N. When the peak value subsequently returns within range, multivibrator IC4R acts as a one minute timer to produce a second signal state (a low state at the output of NAND gates IC3N) at the end of that period if the peak remains within range.

Claim 1 recites a method for protecting an electrical device, the method comprising the steps of "monitoring a line rms voltage to detect a high voltage condition such that the rms voltage is above a predetermined voltage range...monitoring the line rms voltage to detect a low voltage condition such that the rms voltage is below the predetermined range...electrically isolating the electrical device such that the electrical device does not receive electricity when at least one of a high voltage condition and a low voltage condition is detected."

Allos does not describe or suggest a method for protecting an electrical device wherein the method comprises monitoring a line rms voltage to detect a high voltage condition such that the rms voltage is above a predetermined voltage range, monitoring the line rms voltage to detect a low voltage condition such that the rms voltage is below the predetermined range, electrically isolating the electrical device such that the electrical device does not receive electricity when at least one of a high voltage condition and a low voltage condition is detected. Moreover, Allos does not describe or suggest monitoring a line rms voltage to detect a high voltage condition such that the rms voltage is above a predetermined voltage range and monitoring the line rms voltage to detect a low voltage condition such that the rms voltage is below the predetermined range. Additionally, Allos does not describe or suggest monitoring a line rms voltage. Rather, in contrast to the present invention, Allos describes detecting when the peak of the instantaneous value of alternate half cycles of the mains goes outside a predetermined range to provide a first signal state. Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Allos.

Claims 2-9 depend from independent Claim 1. When the recitations of Claims 2-9 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 2-9 likewise are patentable over Allos.

Claim 10 recites a circuit for protecting an electrical device wherein the circuit is configured to “monitor a line rms voltage to detect a rms voltage above a predetermined voltage range...monitor the line rms voltage to detect a rms voltage below the predetermined range...electrically isolate the electrical device such that the electrical device does not receive electricity when at least one of a rms voltage above the predetermined voltage range and a rms voltage below the predetermined range is detected.”

Allos does not describe or suggest a circuit for protecting an electrical device wherein the circuit is configured to monitor a line rms voltage to detect a rms voltage above a predetermined voltage range, monitor the line rms voltage to detect a rms voltage below the predetermined range, electrically isolate the electrical device such that the electrical device does not receive electricity when at least one of a rms voltage above the predetermined voltage range and a rms voltage below the predetermined range is detected. Moreover, Allos does not describe or suggest a circuit that is configured to monitor a line rms voltage. Rather, in contrast to the present invention, Allos describes detecting when the peak of the instantaneous value of alternate half cycles of the mains goes outside a predetermined range to provide a first signal state. Accordingly, for at least the reasons set forth above, Claim 10 is submitted to be patentable over Allos.

Claims 11-19 depend from independent Claim 10. When the recitations of Claims 11-19 are considered in combination with the recitations of Claim 10, Applicant submits that dependent Claims 11-19 likewise are patentable over Allos.

Claim 20 recites a circuit for protecting an electrical device wherein the circuit is configured to “monitor a line rms voltage to detect a high voltage condition such that the voltage is above a predetermined voltage range...monitor the line rms voltage to detect a low voltage condition such that the voltage is below the predetermined range...electrically isolate the electrical device such that the electrical device does not receive electricity when at least one of a high voltage condition and a low voltage condition is detected...monitor the line rms voltage after electrically isolating the electrical device to detect a voltage within the predetermined range...restore power to the electrical device when the line rms voltage is

detected to be within the predetermined voltage range...provide a visual indication when a low voltage condition is detected...provide a visual indication when a high voltage condition is detected...provide a visual indication when the line voltage is being tested.”

Allos does not describe or suggest a circuit for protecting an electrical device wherein the circuit is configured to monitor a line rms voltage to detect a high voltage condition such that the voltage is above a predetermined voltage range, monitor the line rms voltage to detect a low voltage condition such that the voltage is below the predetermined range, electrically isolate the electrical device such that the electrical device does not receive electricity when at least one of a high voltage condition and a low voltage condition is detected, monitor the line rms voltage after electrically isolating the electrical device to detect a voltage within the predetermined range, restore power to the electrical device when the line rms voltage is detected to be within the predetermined voltage range, provide a visual indication when a low voltage condition is detected, provide a visual indication when a high voltage condition is detected, and provide a visual indication when the line voltage is being tested. Moreover, Allos does not describe or suggest a circuit that is configured to monitor a line rms voltage. Rather, in contrast to the present invention, Allos describes detecting when the peak of the instantaneous value of alternate half cycles of the mains goes outside a predetermined range to provide a first signal state. Accordingly, for at least the reasons set forth above, Claim 20 is submitted to be patentable over Allos.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 1-20 be withdrawn.

Respectfully submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Mazereeuw :
Serial No.: 09/682,005 : Art Unit: 2836
Filed: July 6, 2001 : Examiner: Huynh, Kim Ngoc
For: VOLTAGE CONTROLLER :

SUBMISSION OF MARKED-UP PARAGRAPHS AND CLAIMS

Hon. Commissioner for Patents
Washington, D.C. 20231

Sir:

Submitted herewith are marked up paragraphs and Claims in accordance with 37 C.F.R. 1.121(b)(1)(ii) and 37 C.F.R. 1.121(c)(1)(ii):

IN THE SPECIFICATION

Please delete the second paragraph of the Detailed Description beginning on the last line of page 2 and ending on page 3, line 16 and substitute the following therefor:

During operation of voltage controller 10, under normal voltage operating conditions, first LED 16 is energized and produces a green light that provides a visual indication that the rms voltage supply is within a predetermined voltage range above and below a predetermined nominal rms voltage. In one embodiment, the predetermined range is approximately ten percent above and below the nominal rms voltage. For example, in a 220 volt environment, first LED 16 is energized when the voltage is between approximately 198 volts and approximately 242 volts. In another embodiment, the predetermined range is approximately fifteen percent above and below the nominal rms voltage of 220 and first LED 16 is energized when the voltage is between 187 volts and 253 volts. Second LED 18 is intermittently energized (blinks) to indicate that the line voltage is being tested. In one embodiment, when the line voltage is being tested, second LED 18 is energized and produces a green light which provides a visual indication of the line voltage testing. In an exemplary embodiment, the line voltage is tested continuously. In another embodiment, the line voltage is tested less than continuously. Additionally, when the voltage is outside the predetermined range, [and] the voltage is tested approximately every one hundred sixty four seconds. In

alternative embodiments, the voltage is tested between approximately every two to one hundred sixty four seconds.

IN THE CLAIMS

1. (once amended) A method for protecting an electrical device, said method comprising the steps of:

monitoring a line rms voltage to detect a high voltage condition such that the rms voltage is above a predetermined voltage range;

monitoring the line rms voltage to detect a low voltage condition such that the rms voltage is below the predetermined range; and

electrically isolating the electrical device such that the electrical device does not receive electricity when at least one of a high voltage condition and a low voltage condition is detected.

2. (once amended) A method according to Claim 1 further comprising the step of monitoring the line rms voltage after electrically isolating the electrical device.

3. (once amended) A method according to Claim 2 further comprising the step of restoring power to the electrical device when the line rms voltage is within the predetermined voltage range.

4. (once amended) A method according to Claim 1 further comprising the step of providing a visual indication that the line rms voltage is being monitored.

9. (once amended) A method according to Claim 1 wherein said step of monitoring the line rms voltage comprises the step of providing a visual indication when the line voltage is being tested.

10. (once amended) A circuit for protecting an electrical device, said circuit configured to:

monitor a line rms voltage to detect a rms voltage above a predetermined voltage range;

monitor the line rms voltage to detect a rms voltage below the predetermined range;
and

electrically isolate the electrical device such that the electrical device does not receive electricity when at least one of a rms voltage above the predetermined voltage range and a rms voltage below the predetermined range is detected.

11. (once amended) A circuit according to Claim 10 further configured to monitor the line rms voltage after electrically isolating the electrical device.

12. (once amended) A circuit according to Claim 11 further configured to restore power to the electrical device when the line rms voltage is within the predetermined voltage range.

14. (once amended) A circuit according to Claim 10 further configured to provide a visual indication when a rms voltage below the predetermined voltage range is detected.

15. (once amended) A circuit according to Claim 10 further configured to:

provide a visual indication when a rms voltage below the predetermined voltage range is detected; and

provide a visual indication when a rms voltage above the predetermined voltage range is detected.

16. (once amended) A circuit according to Claim 12 further configured to provide a visual indication when a rms voltage below the predetermined voltage range is detected.

17. (once amended) A circuit according to Claim 12 further configured to:

provide a visual indication when a rms voltage below the predetermined voltage range is detected; and

provide a visual indication when a rms voltage above the predetermined voltage range is detected.

20. (once amended) A circuit for protecting an electrical device, said circuit configured to:

monitor a line rms voltage to detect a high voltage condition such that the voltage is above a predetermined voltage range;

monitor the line rms voltage to detect a low voltage condition such that the voltage is below the predetermined range;

electrically isolate the electrical device such that the electrical device does not receive electricity when at least one of a high voltage condition and a low voltage condition is detected;

monitor the line rms voltage after electrically isolating the electrical device to detect a voltage within the predetermined range;

restore power to the electrical device when the line rms voltage is detected to be within the predetermined voltage range;

provide a visual indication when a low voltage condition is detected;

provide a visual indication when a high voltage condition is detected; and

provide a visual indication when the line voltage is being tested.

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